

1. INTRODUCTION TO SPACE-GROUP SYMMETRY

Table 1.6.4.11

 Reflection conditions and possible space groups with Bravais lattice oI and Laue class mmm ; Patterson symmetry $Immm$

Reflection conditions							Space group		Space group		Space group	
hkl	$0kl$	$h0l$	$hk0$	$h00$	$0k0$	$00l$	group	No.	group	No.	group	No.
$h+k+l$	$k+l$	$h+l$	$h+k$	h	k	l	$I222$	23	$I2_12_12_1$	24	$Imm2$	44
							$Im2m$	44	$I2mm$	44	$Immm$	71
$h+k+l$	$k+l$	$h+l$	h, k	h	k	l	$Im2a$	46	$I2mb$	46	$Imma$	74
							$Immb$	74				
$h+k+l$	$k+l$	h, l	$h+k$	h	k	l	$Ima2$	46	$I2cm$	46	$Imam$	74
							$Imcm$	74				
$h+k+l$	$k+l$	h, l	h, k	h	k	l	$I2cb$	45	$Imcb$	72		
$h+k+l$	k, l	$h+l$	$h+k$	h	k	l	$Ibm2$	46	$Ic2m$	46	$Ibmm$	74
							$Icmm$	74				
$h+k+l$	k, l	$h+l$	h, k	h	k	l	$Ic2a$	45	$Icma$	72		
$h+k+l$	k, l	h, l	$h+k$	h	k	l	$Iba2$	45	$Ibam$	72		
$h+k+l$	k, l	h, l	h, k	h	k	l	$Ibca$	73	$Icab$	73		

Table 1.6.4.12

 Reflection conditions and possible space groups with Bravais lattice oF and Laue class mmm ; Patterson symmetry $Fmmm$

Reflection conditions							Space group	
hkl	$0kl$	$h0l$	$hk0$	$h00$	$0k0$	$00l$	group	No.
$h+k, h+l, k+l$	k, l	h, l	h, k	h	k	l	$F222$	22
							$Fmm2$	42
							$Fm2m$	42
							$F2mm$	42
							$Fmmm$	69
$h+k, h+l, k+l$	k, l	$h+l=4n; h, l$	$h+k=4n; h, k$	$h=4n$	$k=4n$	$l=4n$	$F2dd$	43
$h+k, h+l, k+l$	$k+l=4n; k, l$	h, l	$h+k=4n; h, k$	$h=4n$	$k=4n$	$l=4n$	$Fd2d$	43
$h+k, h+l, k+l$	$k+l=4n; k, l$	$h+l=4n; h, l$	h, k	$h=4n$	$k=4n$	$l=4n$	$Fdd2$	43
$h+k, h+l, k+l$	$k+l=4n; k, l$	$h+l=4n; h, l$	$h+k=4n; h, k$	$h=4n$	$k=4n$	$l=4n$	$Fddd$	70

Table 1.6.4.13

 Reflection conditions and possible space groups with Bravais lattice tP and Laue class $4/m$; hk are permutable; Patterson symmetry $P4/m$

Reflection conditions					Space group		Space group		Space group	
$hk0$	$0kl$	$h\pm hl$	$00l$	$h00$	group	No.	group	No.	group	No.
					$P4$	75	$P\bar{4}$	81	$P4/m$	83
			l		$P4_2$	77	$P4_2/m$	84		
			$l=4n$		$P4_1$	76	$P4_3$	78		
$h+k$				h	$P4/n$	85				
$h+k$			l	h	$P4_2/n$	86				